WHAT IS CLAIMED IS:

1. A filter device comprising:

integrating means for integrating control information supplied thereto over a period up to being reset, and outputting an integrated value;

direction determining means to which a first threshold value for determining an increasing direction and a second threshold value for determining a decreasing direction are set in advance, said direction determining means comparing these set threshold values and the integrated value respectively and outputting direction information indicative of a coincident control direction of these results of comparison; and

information generating means for generating new control information in accordance with the supplied direction information.

2. The filter device according to claim 1, wherein the information generating means generates control information for minimizing a change in transmission power under the condition that the supplied direction information is out of both an increase and a decrease.

3. The filter device according to claim 1, wherein the direction determining means determines whether the direction information belongs to either of the increase

and decrease and thereby outputs the direction information according to the result of comparison and outputs a reset signal for erasing the integrated value corresponding to the result of computation to the integrating means.

4. The filter device according to claim 2, wherein the direction determining means determines whether the direction information belongs to either of the increase and decrease and thereby outputs the direction information according to the result of comparison and outputs a reset signal for erasing the integrated value corresponding to the result of computation to the integrating means.

5. A transmission power control apparatus comprising:

receiving means for receiving a signal sent from a device to be controlled;

information arithmetic means for generating information indicative of a characteristic of the received signal by computation on the basis of the received signal;

comparing means for comparing the information obtained by the computation and a predetermined convergent value and outputting a difference obtained by the comparison;

information converting means for converting the difference into control information on transmission power for the controlled device;

filter means for integrating the control information supplied from the information converting means over a period up to the supply of a reset signal, comparing the integrated value and predetermined threshold values set in advance in an increasing direction and a decreasing direction respectively, and outputting control information controlled in a direction corresponding to the coincident threshold value according to the coincidence of comparisons between the integrated value and the predetermined threshold values, and the reset signal;

multiplexing means for incorporating the control information into a transmit signal; and

transmitting means for transmitting the transmit signal to the controlled device.

6. The transmission power control apparatus according to claim 5, wherein the filter means comprises:

integrating means for integrating control information supplied thereto over a period up to being reset, and outputting an integrated value;

direction determining means to which a first threshold value for determining an increasing direction and a second threshold value for determining a decreasing

direction are set in advance, said direction determining means comparing these set threshold values and the integrated value respectively and outputting direction information indicative of a coincident control direction of the results of comparison; and

information generating means for generating new control information in accordance with the supplied direction information.

7. The transmission power control apparatus according to claim 5, wherein the information generating means generates control information for minimizing a change in transmission power under the condition that the supplied direction information is out of both an increase and a decrease.

8. The transmission power control apparatus according to claim 6, wherein the information generating means generates control information for minimizing a change in transmission power under the condition that the supplied direction information is out of both an increase and a decrease.

9. The transmission power control apparatus according to claim 5, wherein the direction determining means determines whether the direction information belongs to either of the increase and decrease and

thereby outputs the direction information according to the result of comparison and outputs a reset signal for erasing the integrated value corresponding to the result of computation to the integrating means.

10. The transmission power control apparatus according to claim 6, wherein the direction determining means determines whether the direction information belongs to either of the increase and decrease and thereby outputs the direction information according to the result of comparison and outputs a reset signal for erasing the integrated value corresponding to the result of computation to the integrating means.

11. The transmission power control apparatus according to claim 7, wherein the direction determining means determines whether the direction information belongs to either of the increase and decrease and thereby outputs the direction information according to the result of comparison and outputs a reset signal for erasing the integrated value corresponding to the result of computation to the integrating means.

12. The transmission power control apparatus according to claim 8, wherein the direction determining means determines whether the direction information belongs to either of the increase and decrease and

thereby outputs the direction information according to the result of comparison and outputs a reset signal for erasing the integrated value corresponding to the result of computation to the integrating means.